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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.



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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 10/585,905
Filing Date: July 12, 2006
Appellant(s): WAGNER ET AL.

Alphonso A. Collins
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed September 23rd, 2011 appealing from the Office action mailed March 10th, 2011.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The examiner has no comment on the appellant's statement of the grounds of rejection to be reviewed on appeal. Every ground of rejection set forth in the Office action from which the appeal is taken (as modified by any advisory actions) is being maintained by the examiner except for the grounds of rejection (if any) listed under the subheading "WITHDRAWN REJECTIONS." New grounds of rejection (if any) are provided under the subheading "NEW GROUNDS OF REJECTION."

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(7) Claims Appendix

The examiner has no comment on the copy of the appealed claims contained in the Appendix to the appellant's brief.

(8) Evidence Relied Upon

1) United States Patent No. 5,106,277 to Tucke (April 21st, 1992)

2) United States Patent No. 5,121,021 to Ward (June 9th, 1992)

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

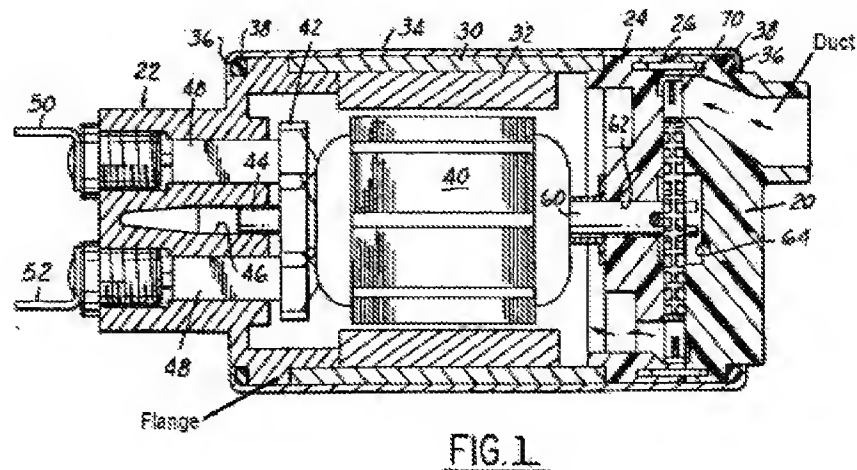
(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

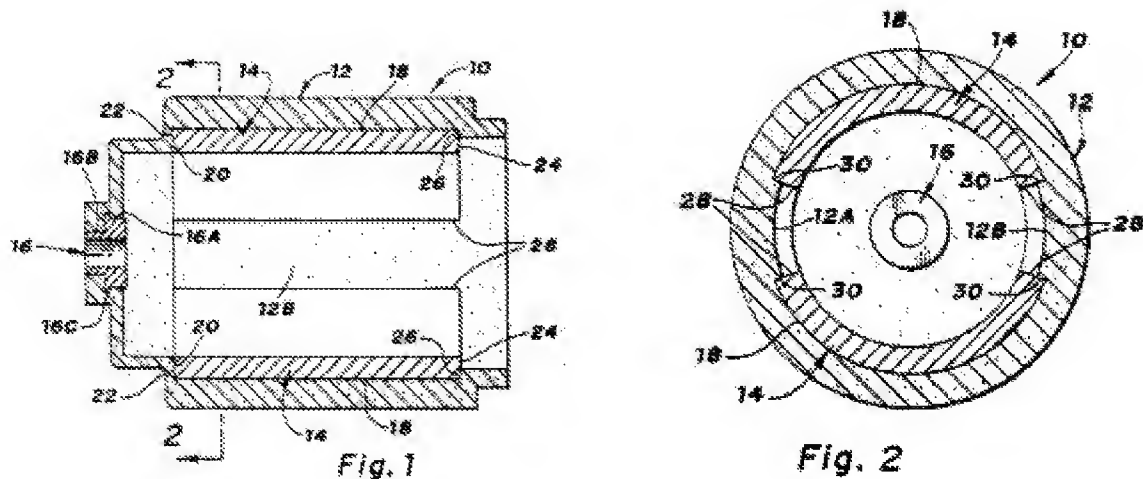
1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

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4. **Claims 1-11** rejected under 35 U.S.C. 103(a) as being unpatentable over United States Patent No. 5,106,277 to Tuckey in view of United States Patent No. 5,121,021 to Ward.



In regards to Independent **Claim 1**, and with particular reference to Figure 1 shown immediately above, Tuckey discloses a fuel pump for an internal combustion engine. Tuckey discloses an electric motor (40), a cylindrical flux ring (30) (i.e. stator ring), permanent magnets (32) arranged inside the cylindrical flux ring (30), and a motor casing (34; i.e. magnet shell) to accommodate the cylindrical flux ring (30) (See column 1, lines 50-55 and Fig. 1). The disclosure according to Tuckey differs with respect to the applicant's invention in that no specific detail is provided teaching of a one-piece body comprising the stator (30) and the magnet shells (34).



However, with reference to Figures 1-2 shown immediately above, Ward discloses a one-piece, combined frame-and-stator assembly 12 for a dynamoelectric machine. Ward's device is designed to simplify the assembly process by lessening the number of parts and eliminating the need for mechanical fasteners (See Abstract) Most important to this assembly 12 is its single piece body made of a single material to form two of the distinct motor components (i.e. a casing and a stator). As shown in Figures 1 and 2 immediately above, the casing 12 is formed as a composite material made up of a blend of iron and plastic (See Col. 2, Lines 3-10) which allows the casing 12 to simultaneously form both the stator and casing/magnet shell (i.e. portions that provide separate and distinct functionality) (See Column 5, Lines 37-39) . It is further noted by the Examiner that Applicant merely claims that the "stator ring and the magnet shells comprise a single body". Thus, the magnet shells are not functionally or structurally claimed, and a casing of any electric motor can be interpreted as Appellant's claimed "magnet shell" (i.e. a shell that surrounds a series of magnets therein; see col. 1, lines 7-9). In this disclosure, Ward

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discloses the well-known use of casings formed of steel material (a magnet shell) that surrounds a magnet (i.e. rotor). Moreover, Ward's magnet shell 12 is designed to securely engage permanent magnets 14 in order to avoid the need for additional fasteners or adhesives (see Abstract; col. 2, lines 34-44). As such, it is clear that Ward also desired a simple structure for additionally integrating magnets with a stator/magnet shell in order to further simplify the overall motor structure. Hence, it is apparent that Ward discloses that it is known to combine two different motor components into a single piece of a single material in order to simply a motor driven device like that of Applicant's motor-driven fuel pump. It is also apparent that Ward provides the motivation to combine the magnets 14 with the stator 12 in a simpler and secure manner. Thus, Ward discloses the claimed invention with the exception of the two particular motor components being combined in Applicant's invention (i.e. the stator and the magnets, rather than the stator and the motor casing). However, since Ward shows that it is well-known to combine two different motor components having separate and distinct functions into a single-piece body that maintains functionality of both components, it would have been obvious to one having ordinary skill in the art at the time the invention was made to also integrate Tuckey's magnet shell 34 with the stator 30 (as taught in Ward), since it has been held that forming in one piece an article which has formerly been formed in two pieces and put together involves only routine skill in the art. *Howard v. Detroit Stove Work*, 150 U.S. 164. Therefore, to one of ordinary skill desiring a simpler fuel pump assembly having less parts, it would have been obvious to utilize the component-combining techniques disclosed in

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Ward in the fuel pump seen in Tuckey in order to obtain such a result.

Consequently, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combine the stator and magnet shell of Tuckey into a single-piece made of a single material via the teachings of Ward in order to obtain predictable results; those results being a simpler and cheaper fuel pump assembly that requires fewer parts to manufacture.

5. Regarding dependent **Claim 2**, the Ward portion of the combination teaches the use of iron or ferrite powder particles that are embedded within a thermoplastic material. In particular, Ward states "The composite magnetic frame material is comprised of iron powder particles having a particle size in a range of about 10 to 250 microns that are coated with a thin layer of thermoplastic material. The composite material is molded to the permanent magnet. It, accordingly, is another object of this invention to provide a method of manufacturing a frame and permanent magnet assembly where a composite material of the type described is molded to the permanent magnet." (Column 1, Lines 24-32) With respect to dependent **Claim 3**, Tuckey in view of Ward discloses the claimed invention except for the specific use of polyphenyl sulfide material for the plastic. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize such a material, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a mater of obvious design choice. *In re Leshin*, 125 USPQ 416. In regards to

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dependent **Claim 4**, it can be seen in Figure 1 above that the frame 12 (i.e. casing) and stator ring for a single piece body (See Claim 1 above). With respect to dependent **Claim 5**, the Tuckey portion of the combination discloses the use of a flange portion for the connection of a fuel line. As illustrated within Fig. 1 of Tuckey, the body (34) comprising the stator ring (8) has a flange portion for joining a connection piece (22) intended for the connection of a fuel line (50, 52) (See Fig.1). In regards to dependent **Claim 6**, Tuckey further discloses a bearing (60) for the rotor which can be seen in Fig.1 as being provided in an analogous manner as depicted by the applicant. Regarding dependent **Claim 7**, it can be seen in Fig.1 according to Tuckey that the cylindrical flux ring (30) or stator ring is joined in one piece to a component (20) having a duct. In regards to dependent **Claims 8-9**, please see the analysis for Claim 1 above. Regarding dependent **Claim 10**, it can be seen in Figure 1 above that the duct (DUCT) of the pump (See Fig. 1) is arranged in the motor casing 20. Therefore, to one of ordinary skill desiring a simpler fuel pump assembly, it would have been obvious to utilize the techniques disclosed in Tuckey in combination with those seen in Ward in order to obtain such a result. Consequently, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the separate components of Tuckey with the integral assembly of Ward in order to obtain predictable results; those results being a much simpler fuel pump that limits the number of parts necessary for assembly. And finally, in regards to dependent **Claim 11**, the magnet shells of both Tuckey and Ward are designed to induce magnetic flux in the rotor to provide the necessary rotation of the motor (an

extremely well-known feature of electric motors).

(10) Response to Argument

In order to properly address Appellant's arguments, it is important to first summarize Appellant's claimed invention. As claimed in independent Claim 1, Appellant's invention is to an electric fuel pump device for supplying fuel to an internal combustion engine of a vehicle. Figure 1 of the application shows a very well-known structure of an electric fuel pump. As seen in this figure, a motor 1 is formed of a casing 9, stator ring 8, magnets 10, and rotor 4. It is clear from this figure that the casing 9 and stator 8 are formed as separate, individual components. Thus, Appellant's primary inventive concept is the simplification of this structure by integrating the stator 8 and casing 9 (i.e. magnet shell) into a single-piece body formed of a single material (see lines 6-7 of Appellant's Claim 1).

In the Examiner's rejection (see above), a combination of two prior art electric fuel pump structures are combined in order to reject Appellant's claimed invention. A base reference to Tuckey discloses a well-known fuel pump structure, and essentially depicts what is shown in Appellant's Figure 1 (i.e. a well-known electric fuel pump having a separate casing 34 (interpreted by the Examiner as a magnet shell) and a separate stator 30. It is noted by the Examiner that Appellant merely claims that the "stator ring and the magnet shells comprise a single body". Thus, the magnet shells are not functionally or structurally claimed, and a casing of any electric motor can be interpreted as

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Appellant's claimed "magnet shell" (i.e. a shell/casing that surrounds a magnet/rotor therein; see col. 1, lines 7-9, of Ward). Thus, a teaching of the integration of these components was needed in order to properly reject Appellant's claimed invention. Hence, the Examiner utilized a secondary reference to Ward, which discloses specific motivation for integrating these components into a single-piece body made of a single material. As seen best in Figure 1 of Ward, an assembly 10 combines a motor casing 12 (i.e. magnet shell) and stator (i.e. magnetic flux path) into a single assembly 10. In particular, Ward's casing/magnet shell is comprised of blending of thermoplastic materials with iron particles, such that a flux path (i.e. stator) for the motor is formed integrally within material of the assembly 10 (see col. 2, lines 3-10; col. 5, lines 37-41). Thus, Ward discloses the motivation to integrate electric fuel pump motor components (i.e. the magnet shell/casing and the stator) into a single piece made of a single material (i.e. a plastic/iron blend). One of ordinary skill in the art of fuel pumps would be able to use the integration techniques disclosed in Ward for the pump seen in Tuckey in order to produce a much cheaper fuel pump that requires less components. This summarizes the logic of the Examiner's combination.

Arguments Concerning Claim 1

l) In regards to Appellant's argument that Ward does not teach or suggest the integration of two different pump components into a single-piece body formed of a single material, the Examiner must respectfully disagree. As described in

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the analysis for Independent Claim 1, Ward's device is designed to simplify the assembly process by lessening the number of parts and eliminating the need for mechanical fasteners (See Abstract) Most important in Ward is it's casing/stator assembly 12, which is comprised of a single piece body made of a single material (i.e. an iron and plastic blend) that combines two distinct motor components (i.e. a casing/magnet shell and a stator) into a single body. As shown in Figures 1 and 2 immediately above, the casing/stator 12 is formed as a composite material made up of a blend of iron and plastic which allows the casing 12 (previously only plastic) and the stator (previously only iron) to simultaneously form both the stator and magnet shell (i.e. a stator/casing assembly 10). It is further noted by the Examiner that Appellant merely claims that the "stator ring and the magnet shells comprise a single body". Thus, the magnet shells are not descriptively or structurally claimed, and a casing of any electric motor can be interpreted as Appellant's claimed "magnet shell" (i.e. a shell that surrounds a series of magnets therein; see col. 1, lines 7-9, where Ward discloses the well-known use of casings formed of magnetic steel material; thus, a magnet shell). As such, it is apparent that Ward combines different components previously made of different materials (i.e. iron vs. plastic) into a single-piece component made entirely of a single material (i.e. an iron/plastic blend). Such integration allows simplification of the pump casing and stator in the same way as Appellant's claimed invention, yet still retains each component's separate and distinct functionality (See Column 5, Lines 37-39 of Ward). Thus, as stated above, because Ward shows that it is well-known to combine two

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different motor components having separate and distinct functionalities into a single-piece body formed of a single material, it would have been obvious to one having ordinary skill in the art at the time the invention was made to integrate the casing/magnet shell with the stator (as taught by Ward) in order to provide predictable results; those results being an less costly electric fuel pump that requires fewer components.

II) In regards to Appellant's argument that *Howard v. Detroit Stove Works* does not apply to prosecution of the current Application, the Examiner must respectfully disagree. Applicant argues that because *Howard v. Detroit Stove Works* deals, in part, with the riveting of (i.e. integrating) multiple pieces of a stove together, it is not relevant to Appellant's claimed invention. The Examiner disagrees. The Examiner must assert that *Howard v. Detroit Stove Works* shows that fastening or combining multiple components made of the same material in order to form a singular (now integral) construction is obvious to one of ordinary skill. Whether this integration be made via rivets, threaded fasteners, or a blending of two compounds, as is the case in Ward, the same is rendered obvious to one of ordinary skill in the art. Such obviousness is asserted by law via decision in *Howard v. Detroit Stove Works*, and thus, the Examiner must assert that such obviousness is quite relevant to the Application at hand.

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(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Alexander B Comley/

Examiner, Art Unit 3746

/Devon C Kramer/

Supervisory Patent Examiner, Art Unit 3746

/Kenneth B Rinehart/

Supervisory Patent Examiner, Art Unit 3743